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Snow Sports IQP

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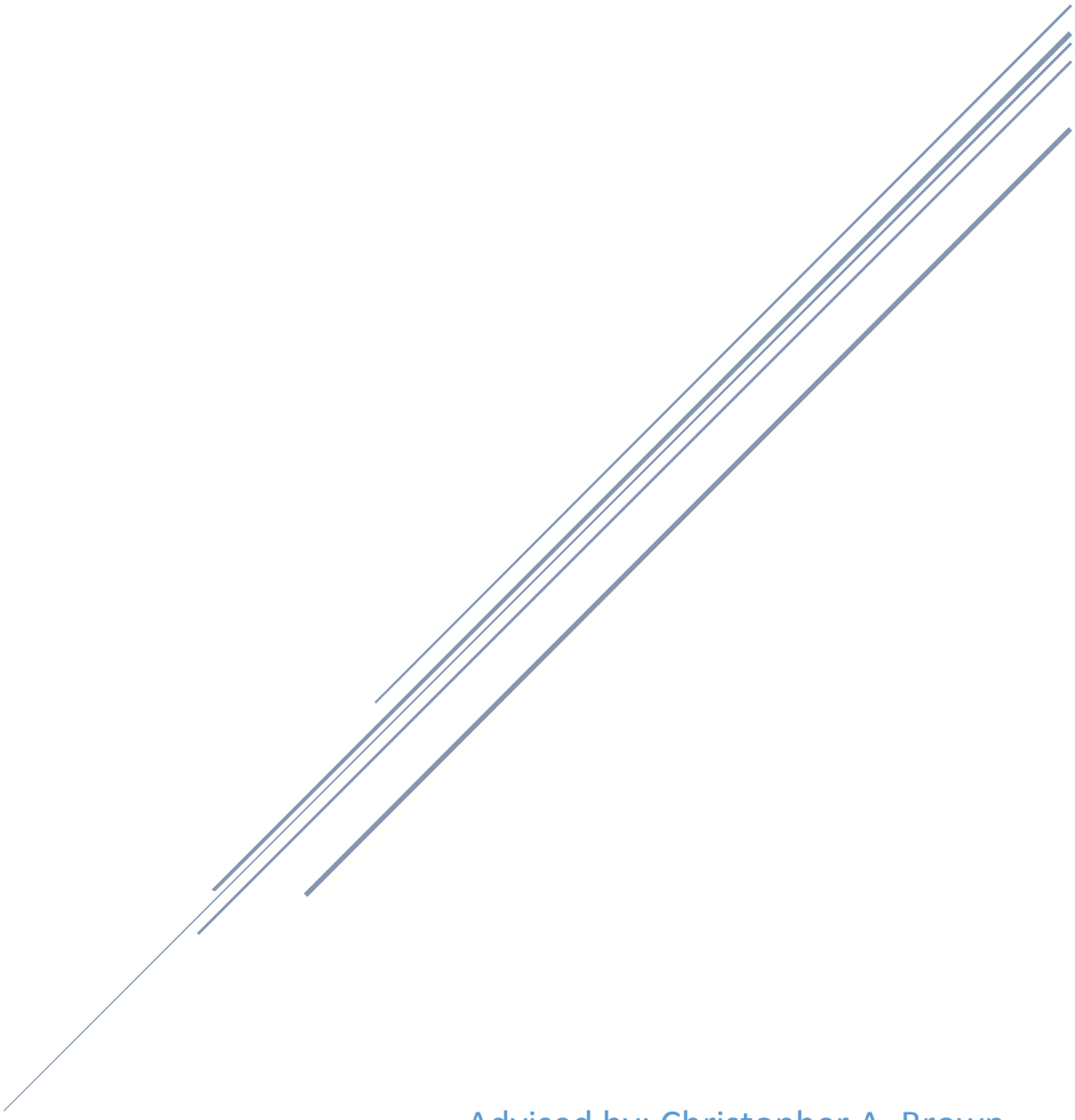
SNOW SPORTS IQP

By Jennifer Choe



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1. Introduction

1. 1 Project Objective

The overarching objective of this work was to focus on snow sport injury reduction. To reach this main objective, a couple of secondary objectives were pursued:

- Six web-based surveys are created to gather data to reduce snow sport injuries
- Determine the effects of group management in contribution to the reduction of snow spot injuries

The effect of surveys and group management that contribute to the reduction of snow sport injuries will aid future IQP groups in continual studies.

1.2 Rationale

1.2.1 Injury Reduction

Since the introduction of snowboarding, the number of snow sport injuries has risen year after year. The National Ski Area Association states that there are 135,000 medically significant skiing or snowboarding related incidents every year (Hawks, 2012). Through education, skiers and snowboarders could potentially have a better understanding of the common causes of injuries which will help avoid snow sport related injuries in the future (Horgan, 2012).

1.2.2 Surveys

This work is important because it explains how surveys can be a useful tool in analyzing injury reduction in snow sports. Producing a survey on the web could potentially reach a population that may not have responded to a live study (Wright, 2005). Capturing legitimate responses

based on its simplicity, consistency, and wording was essential in gaining valid results that other individuals could use in further investigations of snow sport injury reductions. Survey results were necessary in developing the website and finding results.

1.2.3 Group Management

The hypothesis that poor group management will reduce the chances of finding ways to reduce snow sport injuries through surveys is important to clarify because if true it would give future IQP groups guidelines that could increase their chances of successfully discovering ways to reduce snow sport injuries for years to come. The significance group management has on the completion of this project interconnects with the understanding of the survey results for injury reduction.

1.3 State-of-the-Art

1.3.1 Injury Reduction

Studies conducted by team Sugarbush has influenced the design of ski equipment as well sports safety on the mountain (Langran, M., 2010). As of recent, studies on injury reduction through research on fitness testing, inadvertent release, and education have been made (Horgan, 2012). WPI Ski Team's fitness testing displayed results on how physical fitness directly correlates to injury prevention by particularly focusing on the effect injuries had on athletes' abilities to perform daily tasks (Horgan, 2012). This paper is a continuation of the 2012-2013 Web Based Snow-Sport Injury Reduction IQP from WPI.

1.3.2 Surveys

Internet-based surveys have been used for many years (Archer, 2003). Studies on snow sport injuries are still being created. One man in particular, Dr. Mike Langran, has been conducting an ongoing survey through his website (ski-injury.com) that focuses on ski injury prevention (Langran, 2010). Internet-based surveys are voluntary which makes it difficult to obtain a large enough sample to develop accurate findings. In doing so, any epidemiological studies cannot be found (Barrett, 2010), yet surveys of this type continue to be conducted for their world-wide access and inexpensiveness.

1.3.3 Group Management

Through past experiences, the importance of group management has always related to task and time management. As tasks are prioritized, time becomes of issue. As time is strained, organization is muddled and later affects the group's dynamic. Without proper communication and work assessment, group effort will decline and create issues on work completion.

1.4 Approach

1.4.1 Injury Reduction

Group members researched information on one of the following topics:

- Helmet Use
- Boot Cleaning
- Alcohol
- Caffeine
- Binding Injury

- Trail Design

Six surveys were created based upon snow sport injury reduction and each individual's topic focus. Information gained from the surveys will help reduce snow sport injuries in the future.

1.4.2 Surveys

Research was conducted on ways to develop web-based surveys. Once determined, six surveys were created based upon each of the topics above. These surveys were designed to be short, consistent, and easy to understand. Surveys were aimed at being no more than 10 questions long. Once established, each of the six surveys were inputted into a survey software tool (limesurvey.com) and later inserted into a website (hurtskiing.com). Data was retrieved from the website and calculated. The results of the surveys are then formed into a table.

1.4.3 Group Management

Group management has been an issue from the beginning of the project. Each group member focused on one topic that related to snow sport injury reduction. One member, myself, was responsible for numerous things. At first, I was responsible for researching "Helmet Use" with another group member. Responsibility shifted and I was encouraged to assist each of the group members instead. In doing so, I developed survey questions, implemented them into LimeSurvey, and generated the results. As time progressed, communication dwindled and I was left to write up a project separate from the group. Once recognized, I chose to take initiative on finding ways to improve team management. A chart was created on how communication decreased once agendas, outlines, and deadlines were not a priority. Shared information on previous work was necessary in the write-up but the issue effected the discovery of what began as the main objective for the project itself.

2. Methodology

This section provides a brief explanation of the processes used in order to complete this project, as well as justifications for all of those processes. Beginning with an introductory statement describing the main goal that we wish to accomplish, followed by our main topics of research in the form of questions that we would need to provide answers for if we wish to come to some sort of conclusion follows. After providing the results of our findings, we will be able to come to some sort of conclusion that we hope will provide an adequate response to the initial inquiry we first posed.

2.1 Injury Reduction

In order to fulfill the overarching objective of reducing snow sport injuries, surveys were created and presented on hurtskiing.com to gather data on topics related to each subject matter. The focus of injury reduction was promoted through these surveys and the website. By having a section on the website dedicated to each survey created for this project, it became a helpful way of generating results.

2.2 Surveys

	Method Used	*Purpose*
Step 1	Surveys are defined	Measures data gathered on facts, figures, or opinions taken to indicate what the analysis might reveal
Step 2	Research is conducted on the different types of online surveys	Sets guidelines on ways to create surveys suitable to subject matter
Step 3	Six Surveys are created and inputted into a survey software tool (LimeSurvey)	Manages and organizes the survey data
Step 4	Survey data is analyzed and recorded	Results are found and future brainstorming ideas are noted

Step 5	Finalized results based off of data	Satisfies one requirement in reaching the project's overarching objective

Table 2.2 – Methods used in creating surveys for this project

The process of creating surveys helped in the development of questions that would be easily interpreted and answered by the public. For one, surveys need to be short enough to keep people interested in responding (Archer, 2003). The majority of the surveys are under 10 questions in length and multiple choice. For questions that required a short-answer response, clear instructions were labeled for the respondent. The variety of questions differed from survey to survey. There were questions in forms of single choice questions, arrays, mask questions, and text questions. The goal in developing these surveys was to gain a better understanding of the public's view on snow sports as well as using the results to draw conclusions on reducing snow sport injuries. In doing so, individuals in the future could learn from these findings when deciding on how to design their own surveys as well as use the data retrieved to investigate further into each of the six focal points.

2.3 Groups Management

	Method Used	*Purpose*
Step 1	Project group was defined	Able to know and meet the individuals working on this project together
Step 2	Email addresses and phone number are exchanged	Created the easiest and most convenient ways to maintain communication with the group
Step 3	Meetings are scheduled and agendas are created	Organized group discussions and deadlines
Step 4	Communication dwindled and individual work became a necessity	Unable to function properly as a whole thus creating tension within the group and separation

Step 5	Separate efforts were finalized and submitted	Identifies the effects of poor group management

Table 2.3 – Methods used in handling group management for this project

The process of analyzing, critiquing, and improving group management began at the first group meeting. A sure way of keeping open communication throughout the group was to exchange email addresses as well as phone numbers. Once this was settled, meeting times were set and agendas were created. Agendas were a convenient and resourceful way of knowing what had happened each meeting and what was expected in the upcoming meeting. Within those agendas were each of the six topics and explanations of what was completed the week before. Once accomplished, group members and advisors would give advice on what to work on for the following week. For this to happen, meetings were scheduled. Meeting times proved to be extremely difficult to manage throughout the entire duration of the project.

Due to scheduling differences and poor communication, the team began to separate. Being a part of that separation was unexpected and difficult to handle. Seeing as efforts on my end to communicate with other group members resulted in no responses, it was made apparent that I would have to complete my own individual work piece. With that in mind, I was able to identify the effects of poor group management on the project's overall objective.

3. Results

3. 1 Injury Reduction

The data for each of the six surveys was gathered over the course of one ski season through the hurtskiing.com website. All results and tables are shared and listed in the appendix.

These are the results of the six different snow sport, injury related surveys. The differences in full, partial, and total responses for each survey is presented in (Table 3.1).

Table 3.1 Survey ypes and number of responses

Survey	Completed Responses	Partial Responses	Total Number of Responses
Helmet Use	16	41	57
Boot Cleaning	24	15	39
Alcohol	25	12	37
Caffeine	11	2	13
Binding Injury	15	8	23
Trail Design	32	14	46

Table 3.1 – Survey types and number of responses

The table above (3.1) shows the number of completed responses for each survey. The most respondents were for trail design followed by alcohol. The fewest were for caffeine.

Below are results from three different surveys that examined results which correlated Helmet Use, Trail design, and Binding Release to reducing snow sport injuries. Each table is a fractional piece of the full survey. The full survey and results can be found in the appendix.

3.1.1 Helmet Use

The results for helmet use are shown here in a series of tables that give the number and percentage of recorded responses and show the questions and types of responses used in this survey.

Table 3.1.1.1 Helmet Use (Q1)

Number of records in this query: 16 Total records in survey: 16		
Q1. What percent of the time do you spend wearing a helmet while skiing or snowboarding?		
Answer	*Count*	*Percentage*

0-50% of the time	4	25.00%
51-100% of the time	12	75.00%

Table 3.1.1.1 – Helmet Use Survey (Q1)

The table above (3.1.1.1) explain how the majority of people who completed this survey were ones that spent most of their time wearing a helmet while skiing or snowboarding.

Table 3.1.1.2 Helmet Use (Q2)

Q2. How many snow sport related injuries have you had in the past 5 years? (Note: An injury is defined as any incidence of injury that requires professional first aid attention e.g. ski patrol, medical office, ER)		
Answer	*Count*	*Percentage*
None	11	68.75%
1-2 injuries	3	18.75%
3-5 injuries	1	6.25%
More than 5 injuries	1	6.25%

Table 3.1.1.2 – Helmet Use Survey (Q2)

The table above (3.1.1.2) shows that the majority of people who completed this survey did not have any snow sport related injuries in the past 5 years.

Table 3.1.1.3 Helmet Use (Q3)

Q3. How many injuries were to the head?		
Answer	*Count*	*Percentage*
None	12	75.00%
1	1	6.25%
2	1	6.25%
3	1	6.25%
More than 3 injuries	1	6.25%

Table 3.1.1.3 – Helmet Use Survey (Q3)

The table above (3.1.1.3) clarifies that the majority of people who completed this survey did not have injuries to the head.

3.1.2 Binding Injury

The results for binding injury are shown here in a series of tables that give the number and percentage of recorded responses and show the questions and types of responses used in this survey.

Table 3.1.2.1 Binding Injury (Q1)

Number of records in this query: 15 Total records in survey: 15		
Q1. Have you ever attempted a binding release using a self-test?		
Answer	*Count*	*Percentage*
Yes	3	20.00%
No	12	80.00%

Table 3.1.2.1 – Binding Injury Survey (Q1)

The table above (3.1.2.1) shows that the majority of people who completed this survey have never attempted a binding release using a self-test.

Table 3.1.2.1 Binding Injury (Q2)

Q2. Can you release your boots from your bindings using the "self-test"?		
Answer	*Count*	*Percentage*
Yes	2	13.33%
No	4	26.67%
I have not attempted the "self-test"	9	60.00%

Table 3.1.2.2 – Binding Injury Survey (Q2)

The table above (3.1.2.2) shows only 13.33% of the people who completed this survey can release their boots from their bindings using a self-test.

3.1.3 Trail Design

The results for trial design are shown here in a series of tables that give the number and percentage of recorded responses and show the questions and types of responses used in this survey.

Table 3.1.3.1 Trail Design (Q6)

Number of records in this query: 32 Total records in survey: 32	
Q6. Do you feel safer on a finely groomed trail rather than one with little care taken care of it?	
Answer	*Count* *Percentage*
Yes	24 75.00%
No	8 25.00%

Table 3.1.3.1 – Trail Design Survey (Q6)

The table above (3.1.3.1) shows that the majority of people who completed this survey feel safer on a finely groomed trail

Table 3.1.3.2 Trail Design (Q7)

Q7. How often do you say you have skied/snowboarded on a finely groomed trail?	
Answer	*Count* *Percentage*
Never	1 3.12%
Sometimes	10 31.25%%
Often	9 59.38%%
Always	2 6.25%%

Table 3.1.3.2 –Trail Design Survey (Q7)

The table above (3.1.3.2) shows that the majority of people who completed this survey often ski or snowboard on a finely groomed trail.

3.2 Survey Results

3.2.1 Survey Page

The eye-catching background pictures and easy access to surveys created a survey page for the website that was simplistic and direct. The survey page can be seen in (Figure 3.2.1) below.

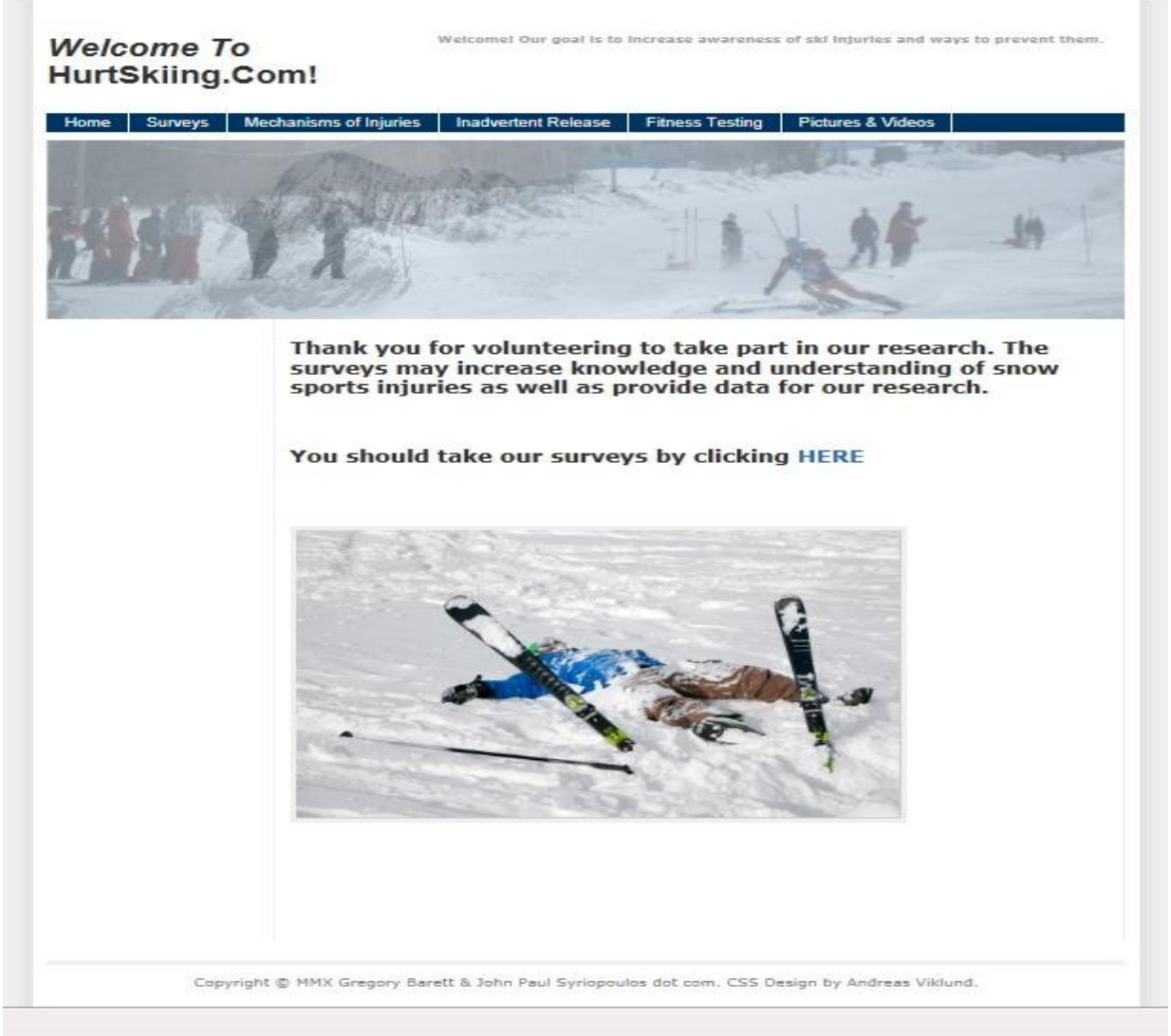


Figure 3.2.1 – Survey page

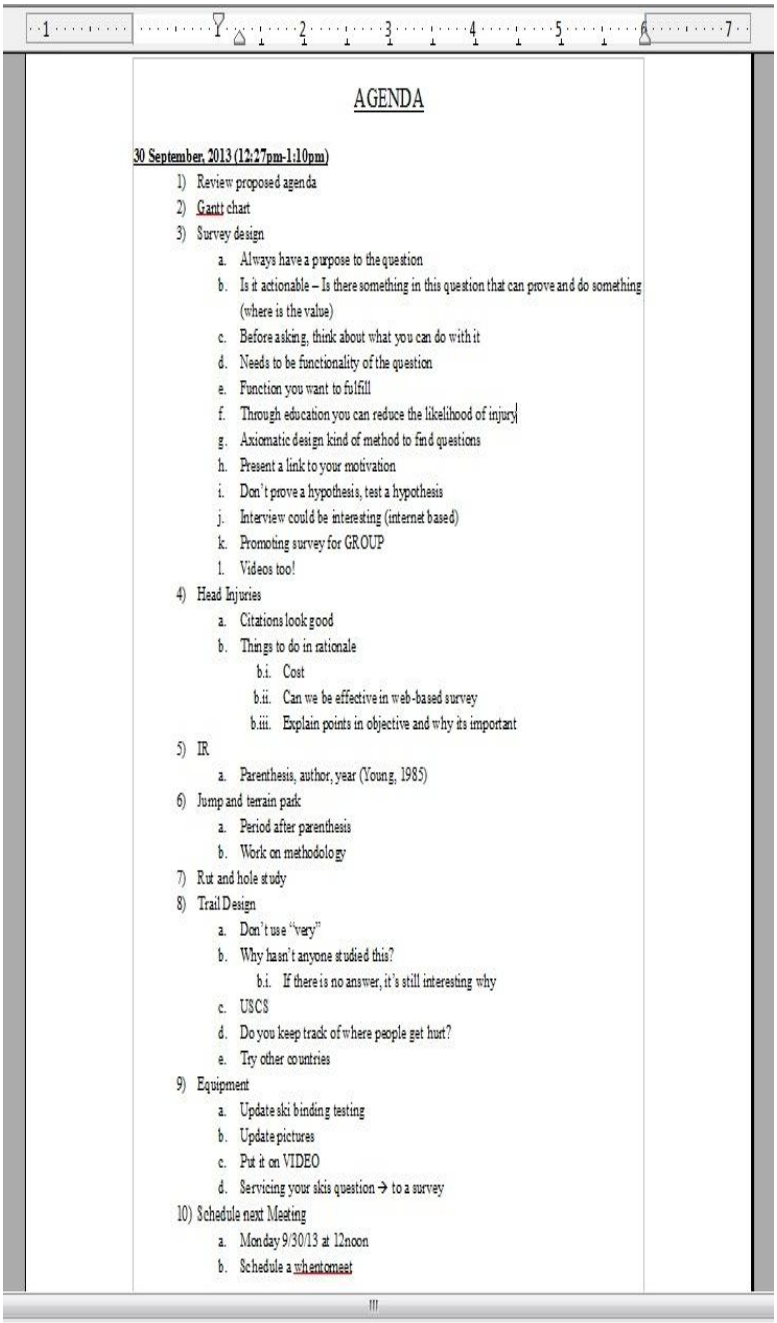
3.2.2 Questions and Response Options

Within several surveys were spelling mistakes and confusions in wording. As most questions were aimed at being direct, some of the open-response set ups created issues in analyzing the data. Having short-answer responses (fill in the blanks) allows for respondents to give answers that are unrelated to the question asked.

3. 3 Group Management Results

3.3.1 Agendas

Agendas were created to organize group meetings. Key discussion points from each meeting were listed according to topic. An example of an agenda created is shown in (Figure 3.3.1)



AGENDA

30 September, 2013 (12:27pm-1:10pm)

1) Review proposed agenda
2) Gantt chart
3) Survey design
   a. Always have a purpose to the question
   b. Is it actionable – Is there something in this question that can prove and do something (where is the value)
   c. Before asking, think about what you can do with it
   d. Needs to be functionality of the question
   e. Function you want to fulfill
   f. Through education you can reduce the likelihood of injury
   g. Axiomatic design kind of method to find questions
   h. Present a link to your motivation
   i. Don't prove a hypothesis, test a hypothesis
   j. Interview could be interesting (internet based)
   k. Promoting survey for GROUP
   l. Videos too!
4) Head Injuries
   a. Citations look good
   b. Things to do in rationale
      b.i. Cost
      b.ii. Can we be effective in web-based survey
      b.iii. Explain points in objective and why its important
5) IR
   a. Parenthesis, author, year (Young, 1985)
6) Jump and terrain park
   a. Period after parenthesis
   b. Work on methodology
7) Rut and hole study
8) Trail Design
   a. Don't use "very"
   b. Why hasn't anyone studied this?
      b.i. If there is no answer, it's still interesting why
   c. USCS
   d. Do you keep track of where people get hurt?
   e. Try other countries
9) Equipment
   a. Update ski binding testing
   b. Update pictures
   c. Put it on VIDEO
   d. Servicing your skis question → to a survey
10) Schedule next Meeting
   a. Monday 9/30/13 at 12noon
   b. Schedule a whentomeet

Figure 3.3.1 – Agenda

3.3.2 Whentomeet

Meetings were scheduled using the website whentomeet.com. Group members would be able to fill out their meeting times for the week, creating an easy way of finding the best meeting time for the group. In (Figure 3.3.2) below, the only meeting time that all group members were available was on Monday, January 27th from 8-9pm.

Figure 3.3.2 – Whentomeet

3.3.2 Communication

Emails became the best method of communication throughout the duration of the project. The amount of emails received over the school year is shown in (Figure 3.3.3) below.

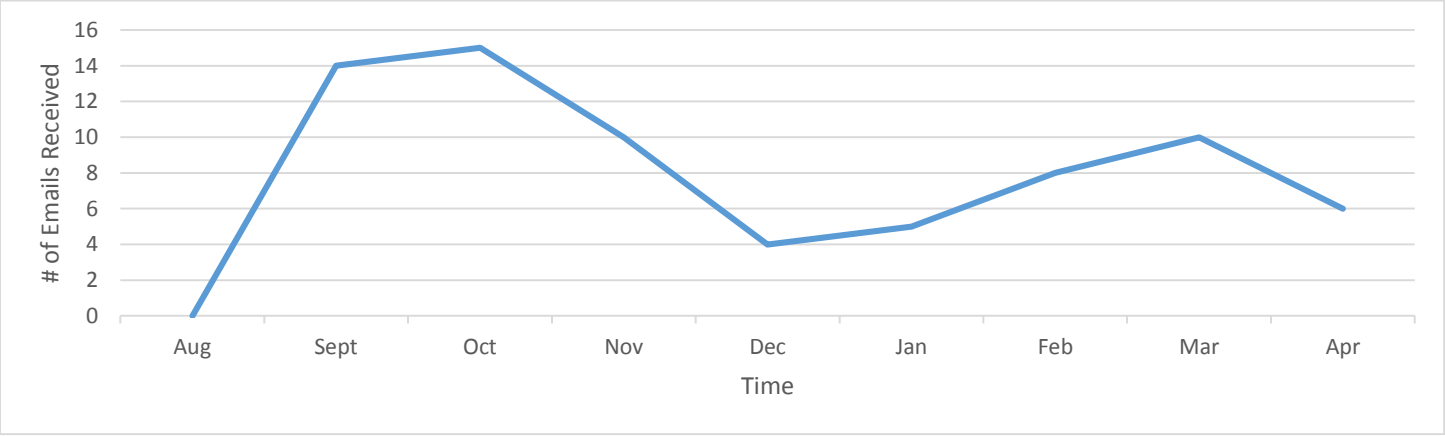


Figure 3.3.3 – Communication

4. Discussion

4. 1 Injury Reduction

As a result of the low number of survey responses, it is not possible to draw any specific conclusions from them. There is still potential for further research within these surveying fields that could validate a noticeable link between injury prevention and snow sports using online surveys. As a result of poor group management, the IQP project was difficult to complete. If all members do not work together and communicate properly, everyone will be left to work on their own. It has been difficult to manage a group of 6-8 members. Since this effects the amount and quality of work processed, the possibility of reducing snow sport injuries decreased. With increased effort and specific guidelines on managing IQP groups, there is potential for future IQP groups to draw greater conclusions from their future works in snow sport injury reduction.

4.2 Surveys

Surveys resulted in being a resourceful tool in analyzing injury reduction in snow sports. LimeSurvey acted as an easy and effective way of creating surveys and organizing data information. It is understood that in order to have an effective survey that generates results, one must be:

1.) Easy to understand

2.) Short and simplistic

3.) Consistent

4.) Encourages completion

Through comparisons, the surveys created for this project could have been improved in relation to each guideline presented above. Along with changes in the structure, the surveys could have been presented various ways rather than solely through the webpage. Future options include:

1.) Personal interviews

2.) Telephone surveys

3.) Mail surveys

4.) Email surveys

With numerous ways to develop surveys, the likelihood of success will be minimal if group members are not working together.

4.3 Group Management

There are a number of options that could have helped keep a group dynamic throughout the project length such as:

1.) Identify a group leader

- Controls deadlines, agendas, and schedules meetings

2.) Set specific responsibilities for all group members from the beginning

- Ensures that everyone can contribute equally to group work and discussions

3.) Work in smaller teams within the entire group (teams of two or three)

- Smaller groups work more effectively
- Easier meeting schedules with less people involved

- When attending “whole” group meetings, if one person is unavailable then the other member would be able to cover for each “small” group

4.) Create a discussion board

- Easy way for all group members to access and edit information on one page

5.) Communication is key

- Without proper communication, group work will suffer

Since working in large group tends to create issues, it may be wise to find project groups that have a fewer number of people involved. This does no guarantee an enjoyable experience but it can make project work more manageable. Not everyone is self-motivated which can make it difficult to work within a group. For this project, as the group stopped created agendas, communication dwindled. Communication at that point in time, the group spent the least amount of time getting work done. When communication between group members stopped, group work began to add up causing a slight increase in communication but never reached the level it started with. This left group members like myself to complete the project alone. By sticking to an outline, effectively communicating, and being courteous of the people you are working with, groups can work at their highest potential.

5. Conclusions

5. 1 Injury Reduction

- The overarching objective, to focus on snow sport injury reduction was unable to be fully determined through the effects of surveys and group management
    - Total number of survey responses was low
    - Group work suffered due to poor management
- Conclusions on ways to improve surveys and group management give future IQP groups the capabilities of reducing snow sport injuries

5. 2 Surveys

- Online surveys can be resourceful in gathering informative data
- Data collected from snow sport, injury related surveys can be used to help determining ways of reducing snow sport injuries
    - More data may have been retrieved if the surveys were marketed differently
        - Face to face
        - Telephone
        - Mail
        - Email
        - Social Networking Sites
- Modifying the survey questions and available answers would avoid repetitive responses
- Surveys must be adjusted to stop people from leaving questions unanswered
    - Find ways to encourage survey completion

5.3 Group Management

- Without proper group management, project completion is difficult to achieve
    - Poor communication can cause confusion and delays in deadlines
    - Survey results can be difficult to interpret alone
    - Group members can be left to comprise project work individually
- Guidelines can encourage groups to work effectively at their highest potential

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7. Appendices

The appendices from the six snow sport, injury-related surveys are included below.

7. 1 Helmet Use Survey Results

Helmet Use Survey (completed)		
Number of records in this query: 16 Total records in survey: 16		
Q1. What percent of the time do you spend wearing a helmet while skiing or snowboarding?		
Answer	*Count*	*Percentage*
0-50% of the time	4	25.00%
51-100% of the time	12	75.00%
Q2. How many snow sport related injuries have you ha in the past 5 years? (Note: An injury is defined as any incidence of injury that requires professional first aid attention e.g. ski patrol, medical office, ER)		
Answer	*Count*	*Percentage*
None	11	68.75%
1-2 injuries	3	18.75%
3-5 injuries	1	6.25%
More than 5 injuries	1	6.25%
Q3. How many injuries were to the head?		
Answer	*Count*	*Percentage*
None	12	75.00%
1	1	6.25%
2	1	6.25%
3	1	6.25%
More than 3 injuries	1	6.25%
Q4. Rate your risk taking tendencies while wearing a helmet. 1 being least risky, 5 being most risky:		
Answer	*Count*	*Percentage*
1	0	0.00%
2	1	6.25%
3	7	43.75%
4	3	18.75%
5	5	31.25%

Q5. Rate your risk taking tendencies while NOT wearing a helmet. 1 being least risky, 5 being most risky:		
Answer	*Count*	*Percentage*
1	4	25.00%
2	1	6.25%
3	8	50.00%
4	0	0.00%
5	3	18.75%

Q6. I feel more confident to take more risks while wearing a helmet than while not wearing a helmet. Choose one of the following answers:		
Answer	*Count*	*Percentage*
Strongly Agree	8	50.00%
Agree	3	18.75%
Neutral	3	18.75%
Disagree	1	6.25%
Strongly Disagree	1	6.25%

Q7. Rate your comfort skiing in the following areas while wearing a helmet. (1 being most comfortable and 5 being least comfortable)		
Answer	*Count*	*Percentage*
Q7.1 Terrain Park		
1	6	37.50%
2	1	6.25%
3	5	31.25%
4	2	12.50%
5	2	12.50%
Q7.2 Through the Trees		
1	7	43.75%
2	1	6.25%
3	5	31.25%
4	1	6.25%
5	2	12.50%
Q7.3 Under the Chairlift/Gondola		
1	7	43.75%
2	3	18.75%
3	2	12.50%
4	1	6.25%
5	3	18.75%
Q7.4Expert Level Trails		
1	5	31.25%

2	2	12.50%
3	3	18.75%
4	2	12.50%
5	4	25.00%
Q7.5 Crowded Trails		
1	4	25.00%
2	4	25.00%
3	2	12.50%
4	2	12.50%
5	4	25.00%

Q8. Rate your comfort skiing in the following areas while NOT wearing a helmet. (1 being most comfortable and 5 being least comfortable)		
Answer	*Count*	*Percentage*
Q8.1 Terrain Park		
1	4	25.00%
2	1	6.25%
3	5	31.25%
4	4	25.00%
5	2	12.50%
Q8.2 Through the Trees		
1	4	25.00%
2	2	12.50%
3	5	31.25%
4	1	6.25%
5	4	25.00%
Q8.3 Under the Chairlift/Gondola		
1	5	31.25%
2	2	12.50%
3	3	18.75%
4	0	0.00%
5	6	37.50%
Q8.4 Expert Level Trails		
1	3	18.75%
2	2	12.50%
3	4	25.00%
4	1	6.25%
5	6	37.50%
Q8.5 Crowded Trails		
1	2	12.50%
2	2	12.50%

3	6	37.50%
4	1	6.25%
5	5	31.25%

Q9. How many snow sport collisions have you had on the slopes?		
Answer	*Count*	*Percentage*
0	2	12.50%
1	1	6.25%
2	3	18.75%
3	2	12.50%
No Answer	8	50.00%

7. 2 Boot Cleaning Survey Results

Boot Cleaning Survey (completed)		
Number of records in this query: 24 Total records in survey: 24		
Q1. Before putting your boots on, how often do you check the bottom of the boot for any foreign objects (ice, rocks, etc.)?		
Answer	*Count*	*Percentage*
Every time	6	25.00%
Sometimes	11	45.83%
Never	7	29.17%
Q2. Before clicking into your bindings, how often do you check the bindings making sure they are free of any foreign objects?		
Answer	*Count*	*Percentage*
Every time	12	50.00%
Sometimes	10	41.67%
Never	2	8.33%
Q3. Which boot cleaning technique would you choose before clicking into your skis?		
Answer	*Count*	*Percentage*
Tap boots together	14	58.33%
Use ski poles to poke ice out of boots	3	12.50%
Nothing, I just click and go	5	20.83%
Other	2	8.33%

Q4. If you answered C in the previous question, have any of the following scenarios occurred?		
Answer	*Count*	*Percentage*
Notice later on that you were not fully inserted into your binding	5	20.83%
Have an inadvertent release (your boot is ejected from the binding) on the mountain	0	0.00%
Nothing, I never seem to have a problem just clicking in and going	4	16.67%
I did not answer C in the previous question	17	70.83%
Q5. How many times in duration of one ski season do you experience inadvertent release?		
Answer	*Count*	*Percentage*
Never	13	54.17%
1-2 times	11	45.83%
3-4 times	0	0.00%
5 or more times	0	0.00%
Q6. During an inadvertent release on a turn, which ski ejects from your binding?		
Answer	*Count*	*Percentage*
The inner ski	4	16.67%
The outer ski	12	50.00%
Both skis	8	33.33%
Q7. What do you suppose is the main cause for inadvertent releases?		
Answer	*Count*	*Percentage*
Poor technique	6	25.00%
Inappropriate skiing	4	16.67%
Equipment failure	7	29.17%
Equipment design	1	4.17%
Debris in boot-binding interface	6	25.00%

7. 3 Alcohol Survey Results

Alcohol Survey (completed)		
Number of records in this query: 25 Total records in survey: 25		
Q1. If you drink alcohol when you ski/snowboard how many drinks do you usually consume?		
Answer	*Count*	*Percentage*
I do not consume alcohol when I ski/snowboard	14	56.00%
1-2 drinks	5	20.00%

2-3 drinks	2	8.00%
4 or more drinks	4	16.00%
Q2. If a ski resort were to serve alcohol, would you be more inclined to drink?		
Answer	*Count*	*Percentage*
Yes	12	48.00%
No	13	52.00%
Q3. Do you drink energy or caffeinated drinks (such as coffee or soda) while skiing or snowboarding?		
Answer	*Count*	*Percentage*
Yes	12	48.00%
No	13	52.00%
Q4. Did you know that an increase of adrenaline aids in higher risk-taking activity?		
Answer	*Count*	*Percentage*
Yes	16	64.00%
No	9	36.00%
Q5. How often do you attempt risk-taking tendencies such as jumps, rails, half pipes, and box rails when NOT under the influence?		
Answer	*Count*	*Percentage*
Never	5	20.00%
Sometimes	11	44.005
Often	7	28.00%
Always	2	8.00%
Q6. How often do you attempt risk-taking tendencies such as jumps, rails, half pipes, and box rails when you ARE consuming these substances?		
Answer	*Count*	*Percentage*
Never	14	56.00%
Sometimes	6	24.00%
Often	2	8.00%
Always	3	12.00%
Q7. Do you consider skiing/snowboarding to be a high risk-taking activity?		
Answer	*Count*	*Percentage*
Very High	2	8.00%
High	11	44.00%
Average	12	48.00%
Low	0	0.00%

7. 4 Caffeine Survey Results

Caffeine Survey (completed)		
Number of records in this query: 11 Total records in survey: 11		
Q1. If you drink caffeinated beverages when you ski/snowboard, how many drinks o you usually consume?		
Answer	*Count*	*Percentage*
I do not drink caffeinated beverages when I ski/snowboard	4	36.36%
1-2 drinks	7	63.64%
3-4 drinks	0	0.00%
5 or more drinks	0	0.00%
Q2. Do you drink energy drinks or other caffeinated drinks (such as coffee or soda) when you ski/snowboard?		
Answer	*Count*	*Percentage*
Yes	5	45.45%
No	6	54.55%
Q3. Did you know that an increase in adrenaline aids in higher risk-taking activity?		
Answer	*Count*	*Percentage*
Yes	9	81.82%
No	2	18.18%
Q4. How often do you attempt high risk-taking stunts such as jumps, rails, half pipes, and box rails when you are NOT drinking caffeinated beverages?		
Answer	*Count*	*Percentage*
Never	2	18.18%
Sometimes	6	54.55%
Often	2	18.18%
Always	1	9.09%
Q5. How often do you attempt high risk-taking stunts such as jumps, rails, half pipes, and box rails when you ARE drinking caffeinated beverages?		
Answer	*Count*	*Percentage*
Never	2	18.18%
Sometimes	5	45.45%

Often	2	18.18%
Always	2	18.18%
Q6. Do you consider skiing/snowboarding to be a high risk-taking activity?		
Answer	*Count*	*Percentage*
Very High	2	18.18%
High	4	36.36%
Average	5	45.45%
Low	0	0.00%

7. 5 Binding Injury Survey Results

Binding Injury Survey (completed)		
Number of records in this query: 15 Total records in survey: 15		
Q1. Have you ever attempted a binding release using a self-test?		
Answer	*Count*	*Percentage*
Yes	3	20.00%
No	12	80.00%
Q2. Can you release your boots from your bindings using the "self-test"?		
Answer	*Count*	*Percentage*
Yes	2	13.33%
No	4	26.67%
I have not attempted the "self-test"	9	60.00%
Q3. Do you know if your bindings are set to the correct torque release value (DIN)?		
Answer	*Count*	*Percentage*
Yes	8	53.33%
No	2	13.33%
I'm not sure	5	33.33%
Q4. Have you ever experienced a lower leg (below the knee) injury from skiing?		
Answer	*Count*	*Percentage*
Yes	0	0.00%
No	15	100.00%

Q5. If you have ever experienced a low leg injury from skiing, did your bindings release during the injury event?		
Answer	*Count*	*Percentage*
Yes	0	0.00%
No	3	20.00%
I have never experienced a lower leg injury	12	80.00%
Q6. Have you ever experienced an inadvertent release (pre-release) of the bindings?		
Answer	*Count*	*Percentage*
Yes	5	33.33%
No	10	66.67%

7. 6 Trail Design Survey Results

Trail Design Survey (completed)		
Number of records in this query: 32 Total records in survey: 32		
Q1. What type of trail do you find most challenging?		
Answer	*Count*	*Percentage*
One with moguls	7	21.88%
One that is steep	4	12.50%
Other	21	65.63%
Q2. What aspects do you find dangerous while skiing or riding (i.e. sharp corners, drop offs, moguls, knolls, etc.)?		
Answer	*Count*	*Percentage*
Sharp corners	2.5	7.81%
Drop offs	10	31.25%
Moguls	8.5	26.56%
Knolls	3	9.38%
Other	8	25.00%
Q3. Have you ever collided with another skier/snowboarder?		
Answer	*Count*	*Percentage*
Yes	18	56.25%
No	14	43.75%
Q4. If you answered yes, were you both on the same trail or was it at an intersection?		

Answer	*Count*	*Percentage*
Same trail	11	34.38%
Intersection	5	15.62%
Don't know	1	3.12%
Did not answer "yes" on previous question	15	46.88%

Q5. Do you feel more at risk or fatigued after turning in the same direction for an extended period of time?		
Answer	*Count*	*Percentage*
Yes, more at risk	1	3.12%
Yes, more fatigued	12	37.50%
Both	5	15.62%
Neither	14	43.75%

Q6. Do you feel safer on a finely groomed trail rather than one with little care taken care of it?		
Answer	*Count*	*Percentage*
Yes	24	75.00%
No	8	25.00%

Q7. How often do you say you have skied/snowboarded on a finely groomed trail?		
Answer	*Count*	*Percentage*
Never	1	3.12%
Sometimes	10	31.25%
Often	19	58.38%
Always	2	6.25%